Surface Water Drainage Proposal Checklist

During the planning process, applicants are often required to submit surface water drainage proposals for appraisal by the Local Planning Authority's (LPA's) Drainage Engineers. This 'Surface Water Drainage Proposal Checklist' has been designed to clearly define the expectations and requirements that proposals, submitted to LPA's within West Sussex, need to satisfy.

It is recommended that applicants take time, at the outset of the planning process, to familiarise themselves with the requirements set out in this checklist.

The expectation is that applicants will include a completed checklist in the supporting documentation they submit to the LPA, during the planning process.

Applicants should be aware that:

- It is in an applicant's interest to provide all the information requested by the checklist, to enable the LPA's Engineers to quickly and efficiently appraise their proposals.
- The omission of information may lead to delays in the planning process.

However, if this checklist requests information that an applicant does not consider to be relevant to their application:

- In the first instance the applicant should discuss this with the LPA's Drainage Engineer. (The Planning Officer dealing with the application will be able to provide applicants with the appraising Engineer's contact details).
- Alternatively, the applicant can provide an explanation as to why they have omitted certain information in the 'Additional Information' section at the end of the checklist, quoting the relevant 'requirement number'. However, be aware; the decision whether or not certain information is required ultimately lies with the appraising Engineer (hence the above advice to consult them before omitting information).

The Town and Country Planning Regulations now require pre-commencement conditions to have the prior agreement of the applicant regarding their wording and use. Therefore, to avoid pre-commencement conditions relating to surface water drainage, applicants will need to submit proposals that provide the information requested in this checklist, and also align with the requirements of the following documents:

- The West Sussex Policy for the Management of Surface Water
- Any supplementary planning guidance issued by the respective LPA.

If surface water drainage conditions have been applied to a planning permission; this document will also help applicants prepare a 'Discharge of Conditions' application'.

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Ground Investigation Results					
No.	**Requirement**	**Results/Information Provided?**			
1	**Winter groundwater monitoring results** Please refer to guidance note 'a' below.	**Yes**		**No**	
2	**Period of winter groundwater monitoring** Note 'a'	**From**	DD/MM/YYYY		
		To	DD/MM/YYYY		
3	**Maximum recorded groundwater level** Note 'a'	**mAOD**			
		mBGL			
4	**Winter infiltration test results** Notes 'b' and 'c'	**Yes**		**No**	
5	**Date of winter infiltration testing** Note 'b'	DD/MM/YYYY			
6	**Details of the location and depth of the infiltration testing** Notes 'b' and 'c'	**Yes**		**No**	
7	**Minimum infiltration rate** Note 'd'	**m/s**			

Guidance Notes

a. Groundwater monitoring should be undertaken during the winter period (October to March inclusive) to enable the peak annual groundwater levels to be established. The duration of monitoring required for smaller developments (e.g. those consisting of less than 10 properties) can be discussed with the LPA's Engineers as; for some locations, a shorter duration may be acceptable. However, unless dispensation is agreed in advance with the LPA's Engineers, a full winter season of monitoring should be undertaken. Groundwater on sites near the coast may be influenced by tidal conditions and therefore this consideration needs to be factored into the monitoring programme.

b. Infiltration testing should be undertaken during the wet winter months (typically January or February) and in line with BRE365 or a similar approved method, such as CIRIA R156. Infiltration testing needs to be carried out at the locations and depths of proposed infiltration structures, this must also be at a depth above the maximum recorded groundwater level in the vicinity of the test pit. Tests must be repeated 3 times consecutively, to replicate saturated ground conditions.

c. Deep-bore Soakaways: Where it is not possible to undertake conventional BRE365 or CIRIA R156 testing due to depth; advice should be sought from the Council's engineers. Please note that; deep-bore soakaways are generally resisted unless there is no alternative. Evidence of the Environment Agency's agreement with the principle of using deep-bore methods to drain the site must be provided within the submission.

d. The minimum infiltration rate obtained at the location and depth of the proposed infiltration structures should be used to inform the design of the infiltration structures. Please use the 'additional information' section at the end of this checklist if multiple infiltration structures are proposed, which utilise different minimum rates.

Proposed Method of Surface Water Disposal					
8	**Infiltration on-site**, via soakaway structures.	**Yes**		**No**	
9	**If on-site infiltration is not to be used, has justification for this decision been provided?** Note 'e'	**Yes**		**No**	
10	**Attenuation** (on-site) with a **restricted discharge to a watercourse** on, or adjacent to, the site.	**Yes**		**No**	
11	**Attenuation** (on-site) with a **restricted discharge to a surface water sewer** on, or adjacent to, the site.	**Yes**		**No**	
12	**Attenuation** (on-site) with a **restricted discharge to a foul water or combined sewer** on, or adjacent to, the site.	**Yes**		**No**	

Guidance Note

e. If on-site infiltration is deemed unviable; evidence supporting the move to the next step(s) of the drainage hierarchy must be provided, to the satisfaction of the LPA's Engineer.

Drainage Design: Supporting Calculations						
	No.	**Requirement**	**Provided?**			
Infiltration Structures	**13**	**Calculations demonstrating the 1 in 10 year event, plus climate change allowance (CCA), can be accommodated below the lowest incoming pipe within each structure.** Notes 'f' and 'g'.	**Yes**		**No**	
	14	**Calculations demonstrating the 1 in 100 year event, plus CCA can be accommodated on-site.** Notes 'f' and 'g'.	**Yes**		**No**	
	15	**Lowest base level of any infiltration structure**	**mAOD** **mBGL**			
	16	**Half-drain time for 10 year event (plus CCA)**	**Yes**		**No**	
			Hours			
	17	**Half-drain time for 100 year event (plus CCA)**	**Yes**		**No**	
			Hours			
	18	**Has the design sought to provide treatment of potential contaminants? E.g. hydrocarbons.**	**Yes**		**No**	
Attenuation / Restricted Discharge	**19**	**Pre-development run-off rate calculations** Note 'h'	**Yes**		**No**	
			l/s			
	20	**Proposed discharge rate** Note 'h'	**l/s**			
	21	**Calculations demonstrating the 1 in 100 year event, plus CCA can be accommodated on-site.** Note 'g' and 'h'	**Yes**		**No**	
	22	**Has the design sought to provide treatment of potential contaminants? E.g. hydrocarbons.**	**Yes**		**No**	
	23	**If the proposed scheme incorporates any impermeable lined attenuation features; calculations are required to demonstrate that appropriate resistance to floatation (due to groundwater levels) is catered for in the design.**	**Yes**		**No**	
	24	**Is a discharge into, or an alteration to, an ordinary watercourse is proposed? (If so, Ordinary Watercourse/ Land Drainage Consent will be required).** Note 'i'	**Yes**		**No**	
	25	**If discharging to a watercourse, piped system or the sea, has the proposed drainage network been modelled against predicted top water levels for the 1 in 100 year storm event, plus CCA, within the existing system?** Note 'j'	**Yes**		**No**	

Guidance Notes

f. The appropriate factor of safety from the table below must be applied to calculations to ensure the design is fully in accordance with CIRIA R156/CIRIA C753. This is applicable to infiltration systems, utilising the base area.

Factor of Safety Table						
Size of Area to be Drained	Consequences of failure					
	No damage or inconvenience		Minor inconvenience, e.g. surface water on car park		Damage to buildings, structures or roads.	
	Cv=1.0	Cv=0.75	Cv=1.0	Cv=0.75	Cv=1.0	Cv=0.75
<100 m^2	1.5	2	2	3	10	13
100m^2 to 1000m^2	1.5	2	3	4	10	13
>1000m^2	1.5	2	5	6.5	10	13

g. Climate change allowance on peak rainfall intensities or stored volumes must take into account the lifetime of the development.

h. Calculations of Qbar are to be based upon the area to be positively drained. It is advised that agreement is sought with the LPA's Engineer, at an early stage, regarding the area to be considered for this calculation. Unless otherwise agreed; the minimum acceptable discharge rate is 2l/s when using formal flow control devices. For lower flow rates; evidence must be provided that adequate measures are in place to protect the flow control device from blockage. **For Greenfield sites**; run-off must be restricted to the Greenfield Qbar runoff rate during all events up to and including the 1 in 100 year rainfall event, including climate change allowance. **For Brownfield sites**; infiltration should be investigated as the first option, but where evidence can be provided that this is unviable, off-site flows from all events should also be restricted to Greenfield Qbar. If that is not possible; flow should be restricted to as close to Qbar as is achievable, with a minimum requirement of 50% betterment. Applicants are expected to provide fully detailed plans of the site's existing surface water drainage arrangements, including impermeable areas, gullies, outfalls, pipes & diameters, manholes, etc., to prove the extent of the existing positively drained areas and their associated points of discharge.

i. Ordinary Watercourse/Land Drainage Consent will need to be sought, ideally in parallel with planning permission, if the proposals incorporate discharge into, culverting or altering a watercourse.

j. Modelling is required to ensure that the effects of surcharged outfalls are taken into account.

Plans/Drawings/Diagrams					
No.	**Requirement**	**Provided?**			
26	**Plan detailing the location of groundwater monitoring and infiltration testing**	**Yes**		**No**	
27	**Detailed drainage layout plan** Note 'k'	**Yes**		**No**	
28	**Construction detail plans** Note 'l'	**Yes**		**No**	
29	**Exceedance flow route plans** Note 'm'	**Yes**		**No**	
30	**Impermeable area plan**	**Yes**		**No**	
31	**If ground levels are being raised ≥ 300mm above existing levels and is unavoidable, have fully detailed plans been provided, together with drainage proposals, to address any potential drainage related issues.**	**Yes**		**No**	

Guidance Notes

k. Drainage layout plans should include:
- All surface water drainage pipes labelled with: diameters, pipe materials, gradients and invert levels.
- All infiltrating and attenuating structures (including permeable paving) labelled with; dimensions, invert/base and cover levels.
- All manholes labelled with: a reference number, cover levels, invert levels, cover loading grade.
- All silt traps clearly labelled with sump depths.
- Control structures with discharge rates, hydraulic head and invert levels.
- Proposed/existing levels of any areas subject to ground raising, together with suitable measures/detailed drawings for the associated management of surface water runoff**. Please note that ground raising should be avoided unless there are exceptional circumstances**. In any instances where this is envisaged early consultation with the Council Engineer is recommended.

l. Site specific construction detail plans should be supplied. The following elements must be included (where applicable): infiltrating structures; attenuating structures; manholes; catch-pits/silt traps; flow control devices; permeable paving; headwalls; channel drains; gullies; pipe bedding and surround, etc.

m. Unless specifically requested by the Council's drainage Engineers 'Exceedance Flow Route Plans' are only required for developments of more than 10 residential properties or more than 0.5ha of commercial development.

Additional Information

The space below can be used to provide an explanation for any required information that has been omitted in the submission of this form or to raise specific queries seeking clarification. Please enter the appropriate line entry number to which the comments relate in the box at the left-hand side of the form.